

β 1 α 1

NcoI ▼

-2 CCATGGGCAGAGACTCCCCAAGGGATTCTGTGACCAAGGGCTGTGCTACTACACC 60

M G R D S P R D F V Y Q F K G L C Y Y T

61 AACGGGACGCAGCGCATACGGGATGTGATCAGATACTACAAACCAGGAGGAGTACCTG 120

N G T Q R I R D V I R Y I Y N Q E E Y L

121 CGCTACGACAGCGACGTGGCGAGTACCGCGCGCTGACCGAGCTGGGGCGGCCCTCAGCC 180

R Y D S D V G E Y R A L T E L G R P S A

181 GAGTACTTTAACAAAGCAGTACCTGGAGGAGACGCGGGCCGAGCTGGACACGGTCAGCC 240

E Y F N K Q Y L E Q T R A E L D T V C R

end of β 1 ▼ start of α 1

241 CACAAC TACGAGGGT CGGAGGTCCGCACCTCCCTGC GGCTGGAGGTCAAGACGAC 300

H N Y E G S E V R T S L R R L G G Q D D

301 ATTGAGGCCGACACGTAGCCGCCTATGGTATAAATATGTATCA GTATTATGAATCCAGA 360

I E A D H V A A Y G I N M Y Q Y Y E S R

361 GCCCAGTTCACACATGAATTGATGGTGACGAGGAATTCTATGTGGACTGGATAAGAAG 420

G Q F T H E F D G D E E F Y V D L D K K

421 GAGACCACATCTGGAGGATCCCGAGTTGGACAGCTGACAAGCTTGACCCCCAAGGTGGA 480

E T I W R I P E F G Q L T S F D P Q G G

481 CTTCAAATATAGCTATAATAAAACACAATTGGAAATCTTGATGAAGAGGTCAAATTCA 540

L Q N I A I I K H N L E .I L M K R S N S

XbaI

541 ACCCAAGCTGTCAACTAACTCGAG

T Q A V N end

FIG. 1A

FIG. 1B

$\beta 1\alpha 1/\text{MBP-72-89}$

NcoI

CCATGGCAGAGACTCCCACAGAACGAGGCCAAGGACTCAAGGTGAGAACCCAGTGGTGCACCTTCGGGGGGAGGCTCACTAGGGCCCCGAGGGCTCT

M G R D S P Q K S Q R T Q D E N P V H F G G G S L V P R G S

GGAGGTGGAGGCTCC

G G G G S

--linker---

FIG. 1C

$\beta 1\alpha 1/\text{MBP-55-69}$

NcoI

CCATGGCAGAGACTCCTCGGCAAGGATCGCATCATGGGGGGAGCACCCACTACGGTGGAGGTGGAGGCTCACTAGTG

M G R D S S G K D .S H H A R T T H Y G G G S L V

FIG. 1C

$\beta 1\alpha 1/\text{CM-2}$

NcoI

CCATGGCAGAGACTCCAAACTGGAACTGGAGTCGGCTCTGGAAAGCTGAAGGCTTCCTGGAAACGGGCTGGAGGCCACTAGTG

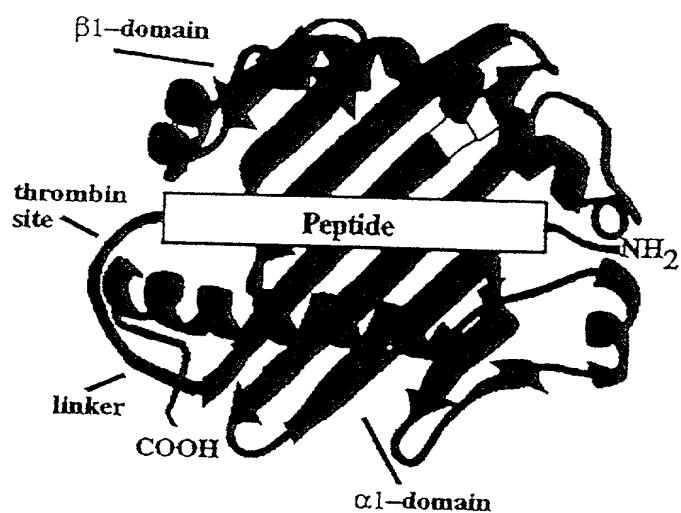
M G R D S K L E L Q S A L E A S L E H G G G S L V

SpeI

FIG. 1D



a. RT1.B



b. $\beta_1\alpha_1/\text{peptide}$

FIG. 2
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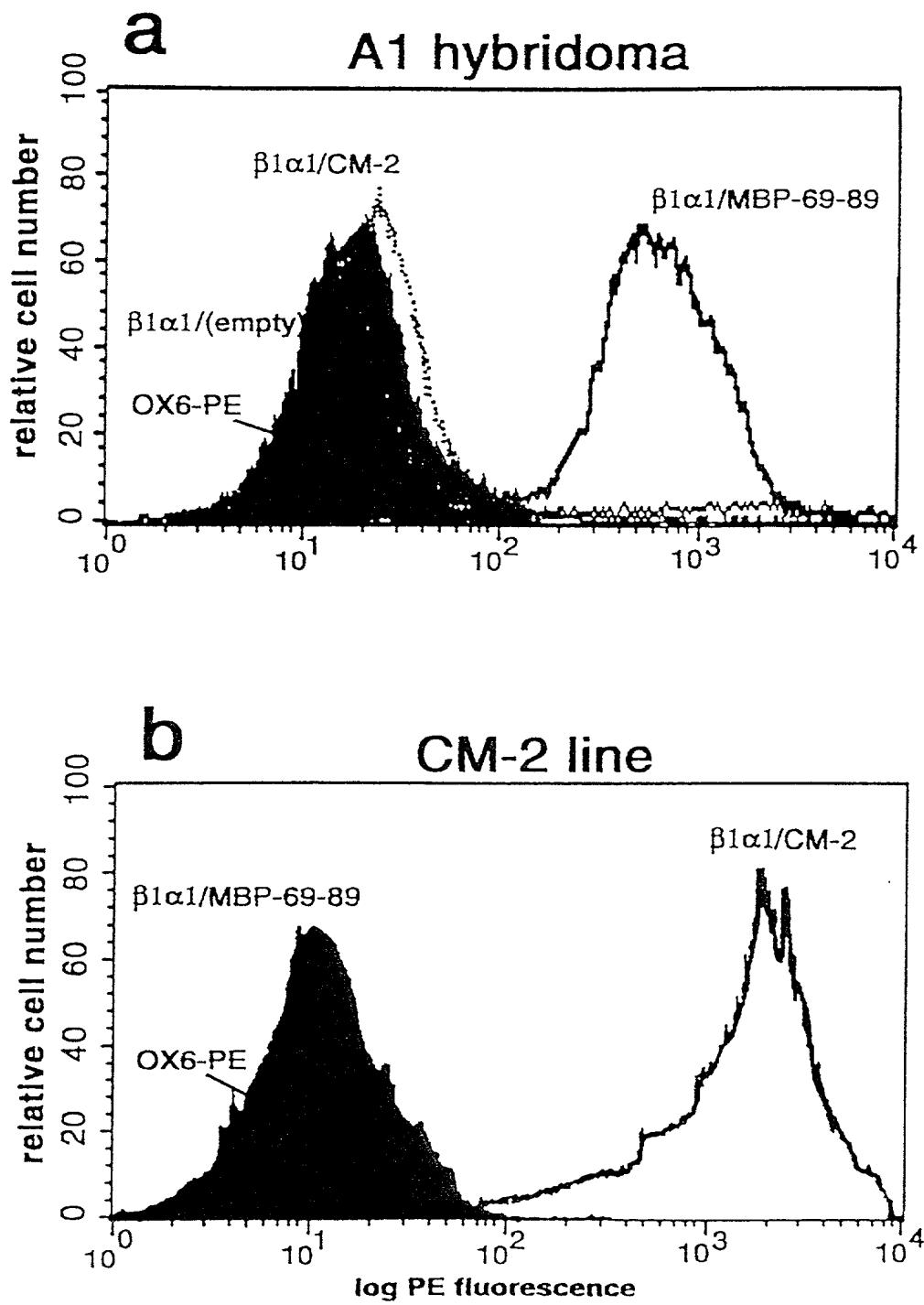


FIG. 3
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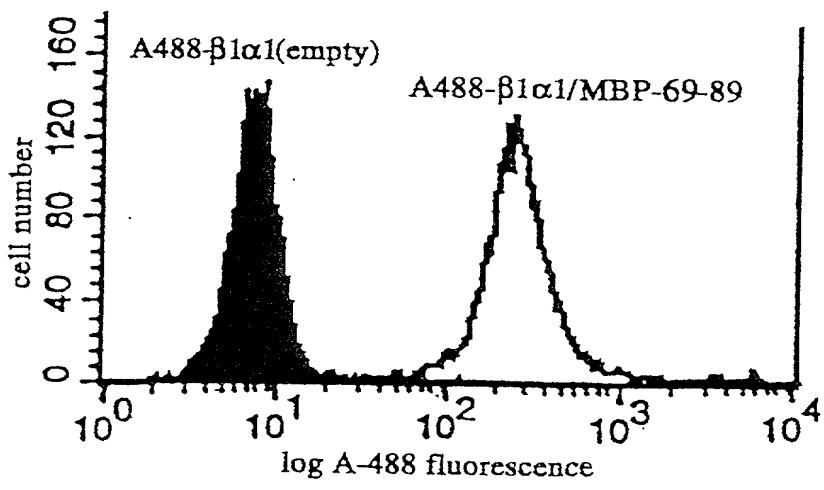


FIG. 4
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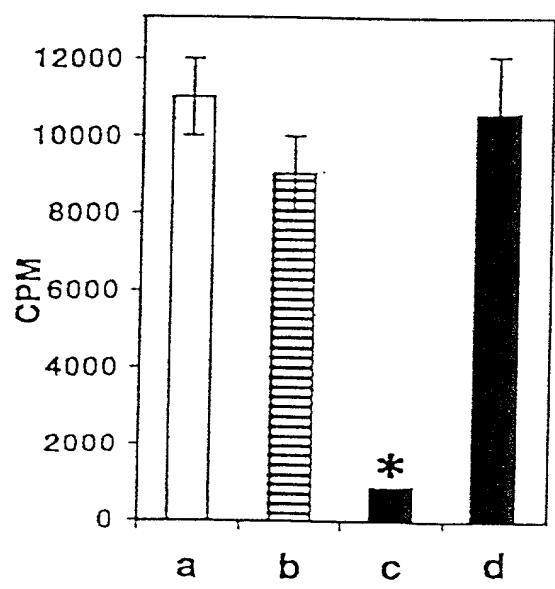


FIG. 5
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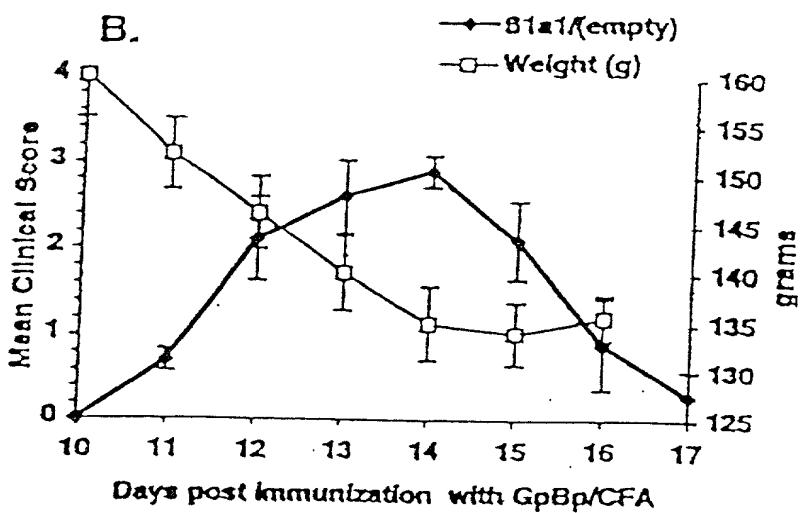
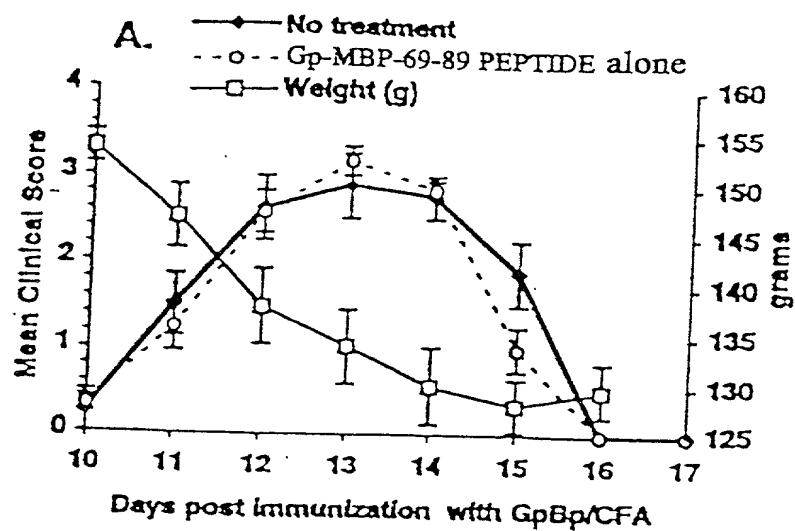


FIG. 6A

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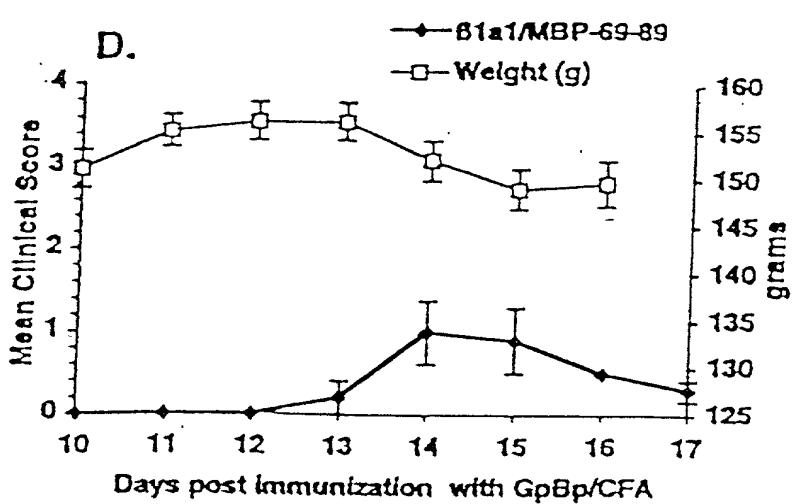
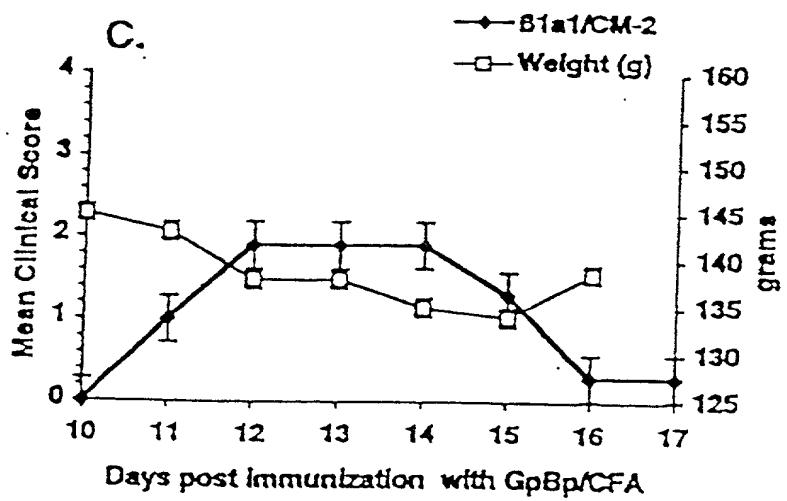


FIG. 6B
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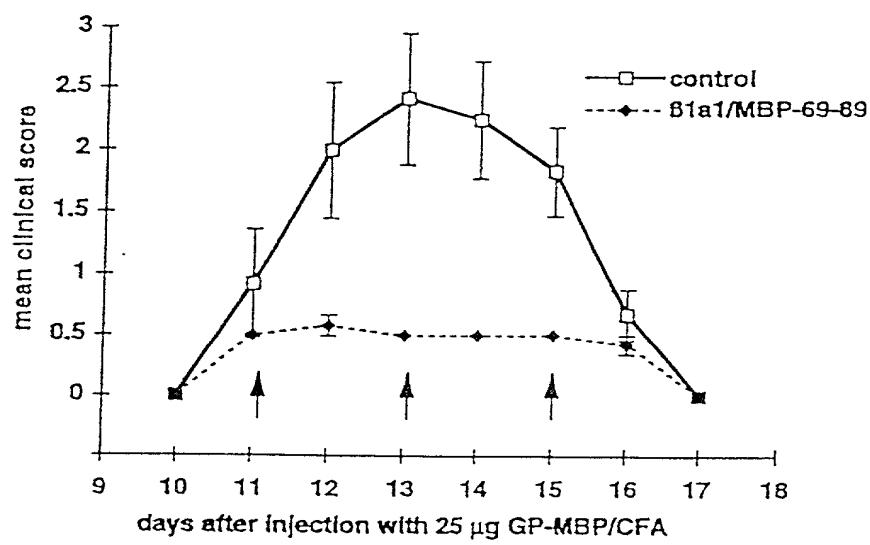


FIG. 7
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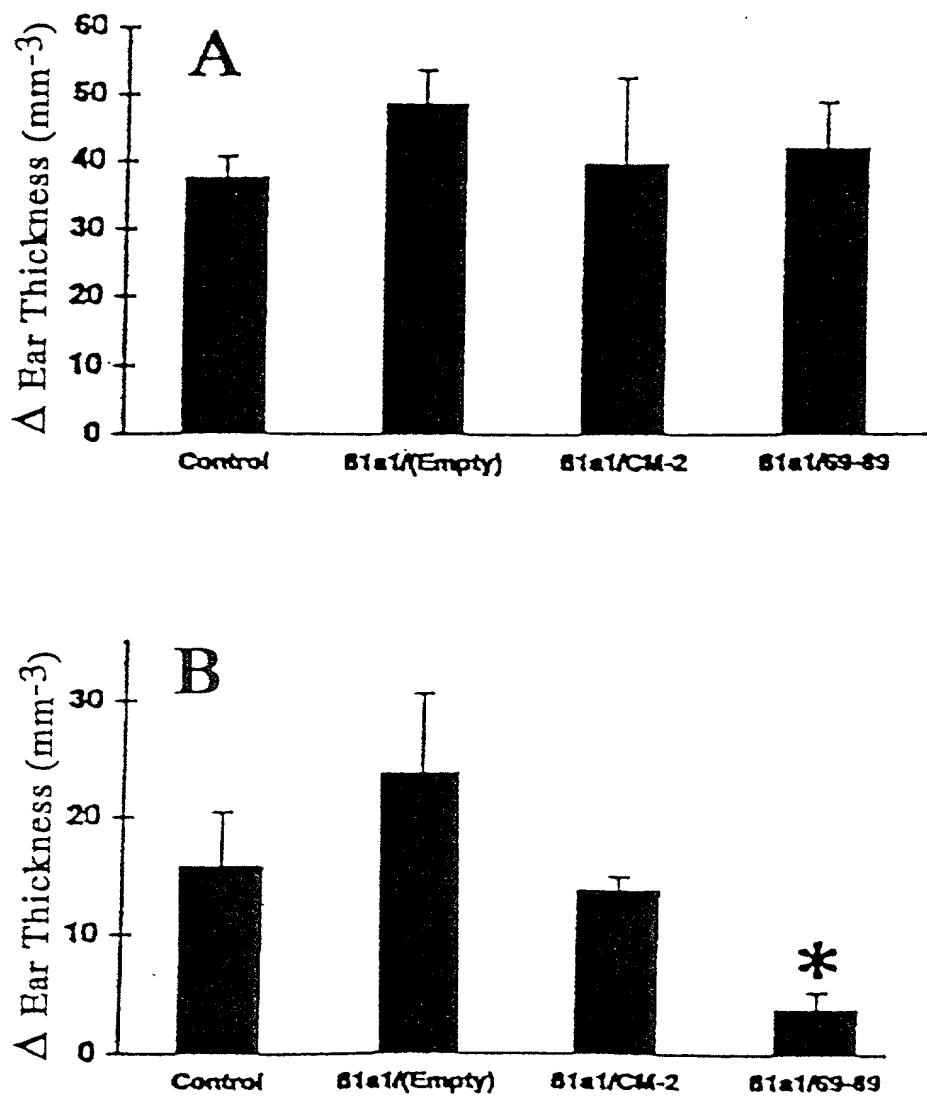


FIG. 8
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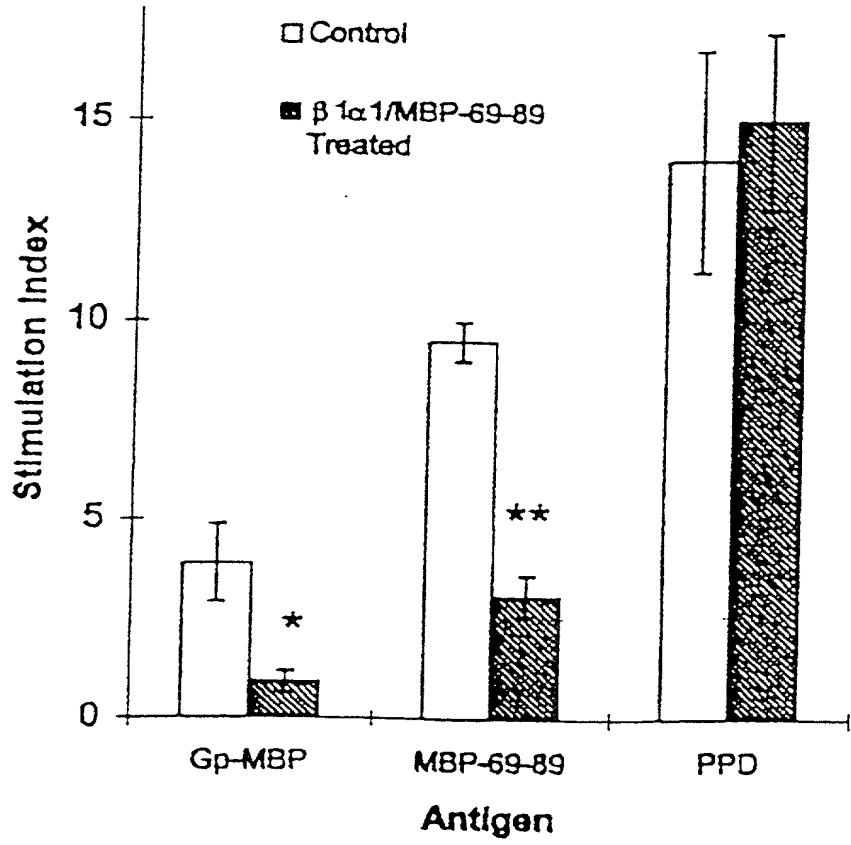


FIG. 9
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bioactive bioactive bioactive bioactive bioactive bioactive bioactive bioactive
bioactive bioactive bioactive bioactive bioactive bioactive bioactive bioactive
bioactive bioactive bioactive bioactive bioactive bioactive bioactive bioactive
bioactive bioactive bioactive bioactive bioactive bioactive bioactive bioactive

β_1 domain:

ARG4-PRO5-ARG6-PHE7-LEU8-TRP9-GLN10-LEU11-LYS12-PHE13-GLU14-CYS15-
HIS16-PHE17-PHE18-ASN19-GLY20-THR21-GLU22-ARG23-VAL24-ARG25-LEU26-
LEU27-GLU28-ARG29-CYS30-ILE31-TYR32-ASN33-GLN34-GLU35-GLU36-SER37-
VAL38-ARG39-PHE40-ASP41-SER42-ASP43-VAL44-GLY45-GLU46-TYR47-ARG48-
ALA49-VAL50-THR51-GLU52-LEU53-GLY54-ARG55-PRO56-ASP57-ALA58-GLU59-
TYR60-TRP61-ASN62-SER63-GLN64-LYS65-ASP66-LEU67-LEU68-GLU69-GLN70-
ARG71-ARG72-ALA73-ALA74-VAL75-ASP76-THR77-TYR78-CYS79-ARG80-HIS81-
ASN82-TYR83-GLY84-VAL85-GLY86-GLU87-SER88-PHE89-THR90-VAL91-GLN92-
ARG93-ARG94-VAL95

α_1 domain:

GLU3-GLU4-HIS5-VAL6-ILE7-ILE8-GLN9-ALA10-GLU11-GLU12-TYR13-LEU14-
ASN15-PRO16-ASP17-GLN18-SER19-GLY20-GLU21-PHE22-MET23-PHE24-ASP25-
PHE26-ASP27-GLY28-ASP29-GLU30-ILE31-PHE32-HIS33-VAL34-ASP35-MET36-
ALA37-LYS38-LYS39-GLU40-THR41-VAL42-TRP43-ARG44-LEU45-GLU46-GLU47-
PHE48-GLY49-ARG50-PHE51-ALA52-SER53-PHE54-GLU55-ALA56-GLN57-GLY58-
ALA59-LEU60-ALA61-ASN62-ILE63-ALA64-VAL65-ASP66-LYS67-ALA68-ASN69-
LEU70-GLU71-ILE72-MET73-TYR74-LYS75-ARG76-SER77-ASN78-TYR79-THR80-
PRO81-ILE82-THR83-ASN84

Y₁ Y₂ Y₃ Y₄ Y₅ Y₆ Y₇ Y₈ Y₉ Y₁₀ Y₁₁ Y₁₂ Y₁₃ Y₁₄ Y₁₅ Y₁₆ Y₁₇ Y₁₈ Y₁₉ Y₂₀ Y₂₁ Y₂₂ Y₂₃ Y₂₄ Y₂₅ Y₂₆ Y₂₇ Y₂₈ Y₂₉ Y₃₀ Y₃₁ Y₃₂ Y₃₃ Y₃₄ Y₃₅ Y₃₆ Y₃₇ Y₃₈ Y₃₉ Y₄₀ Y₄₁ Y₄₂ Y₄₃ Y₄₄ Y₄₅ Y₄₆ Y₄₇ Y₄₈ Y₄₉ Y₅₀ Y₅₁ Y₅₂ Y₅₃ Y₅₄ Y₅₅ Y₅₆ Y₅₇ Y₅₈ Y₅₉ Y₆₀ Y₆₁ Y₆₂ Y₆₃ Y₆₄ Y₆₅ Y₆₆ Y₆₇ Y₆₈ Y₆₉ Y₇₀ Y₇₁ Y₇₂ Y₇₃ Y₇₄ Y₇₅ Y₇₆ Y₇₇ Y₇₈ Y₇₉ Y₈₀

β_1 domain:

ARG4-PRO5-TRP6-PHE7-PHE8-GLU9-TYR10-CYS11-CYS12-SER13-GLU14-CYS15-HIS16-PHE17-TYR18-ASN19-GLY20-THR21-GLN22-ARG23-VAL24-ARG25-LEU26-LEU27-VAL28-ARG29-TYR30-PHE31-TYR32-ASN33-LEU34-GLU35-GLU36-ASN37-ALA49-VAL50-THR51-GLU52-LEU53-GLY54-ARG55-PRO56-ASP57-ALA58-GLU59-ASN60-TRP61-ASN62-SER63-GLN64-PRO65-GLU66-PHE67-LEU68-GLU69-GLN70-LYS71-ARG72-ALA73-GLU74-VAL75-ASP76-THR77-VAL78-CYS79-ARG80-HIS81-ASN82-TYR83-GLU84-ILE85-PHE86-ASP87-ASN88-PHE89-LEU90-VAL91-PRO92-ARG93-ARG94-VAL95

α_1 domain:

GLU3-GLU4-HIS5-THR6-ILE7-ILE8-GLN9-ALA10-GLU11-PHE12-TYR13-LEU14-PHE26-ASP27-GLY28-ASP29-GLU30-ILE31-PHE32-MET23-PHE24-ASP25-GLU37-LYS38-SER39-GLU40-THR41-ILE42-TRP43-ARG44-LEU45-GLU46-GLU47-ALA59-LEU60-ALA61-ASN62-ILE63-ALA64-VAL65-ASP66-LYS67-ALA68-ASN69-LEU70-ASP71-VAL72-MET73-LYS74-GLU75-ARG76-SER77-ASN78-ASN79-THR80-PRO81-ASP82-ALA83-ASN84

FIG. 10B

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β_1 domain:

MET (-2)-GLY (-1)-ARG1-ASP2-SER3-PRO4-ARG5-ASP6-PHE7-VAL8-TYR9-
GLN10-PHE11-LYS12-GLY13-LEU14-CYS15-TYR16-TYR17-THR18-ASN19-GLY20-
THR21-GLN22-ARG23-Ile24-ARG25-ASP26-VAL27-Ile28-ARG29-TYR30-Ile31-
TYR32-ASN33-GLN34-GLU35-GLU36-TYR37-Ile38-ARG39-TYR40-ASP41-SER42-
ASP43-VAL44-GLY45-GLU46-TYR47-ARG48-Ala49-LEU50-THR51-GLU52-LEU53-
GLY54-ARG55-PRO56-SER57-Ala58-GLU59-TYR60-TRP61-ASN62-SER63-GLN64-
LYS65-GLN66-TYR67-Ile68-GLU69-GLN70-THR71-ARG72-Ala73-GLU74-LEU75-
ASP76-Thr77-VAL78-CYS79-ARG80-His81-ASN82-TYR83-GLU84-GLY85-SER86-
GLU87-VAL88-ARG89-THR90-SER91-Ile92-Arg93-Arg94-LEU95

α_1 domain:

ALA2-ASP3-HIS4-VAL5-Ala6-Ala7-TYR8-GLY9-Ile10-ASN11-MET12-TYR13-
GLN14-TYR15-TYR16-Glu17-Ser18-Arg19-GLY20-GLN21-Phe22-Thr23-His24-
Glu25-Phe26-Asp27-Gly28-Asp29-Glu30-Glu31-Phe32-Tyr33-Val34-Asp35-
Leu36-Asp37-Lys38-Lys39-Glu40-Thr41-Ile42-Trp43-Arg44-Ile45-Pro46-
Glu47-Phe48-Gly49-Gln50-Leu51-Thr52-Ser53-Phe54-Asp55-Pro56-Gln57-
Gly58-Gly59-Leu60-Gln61-Asn62-Ile63-Ala64-Ile65-Ile66-Lys67-His68-
Asn69-Leu70-Glu71-Ile72-Leu73-Met74-Lys75-Arg76-Ser77-Asn78-Ser79-
Thr80-Gln81-Ala82-Val83-Asn84

α₁ domain:

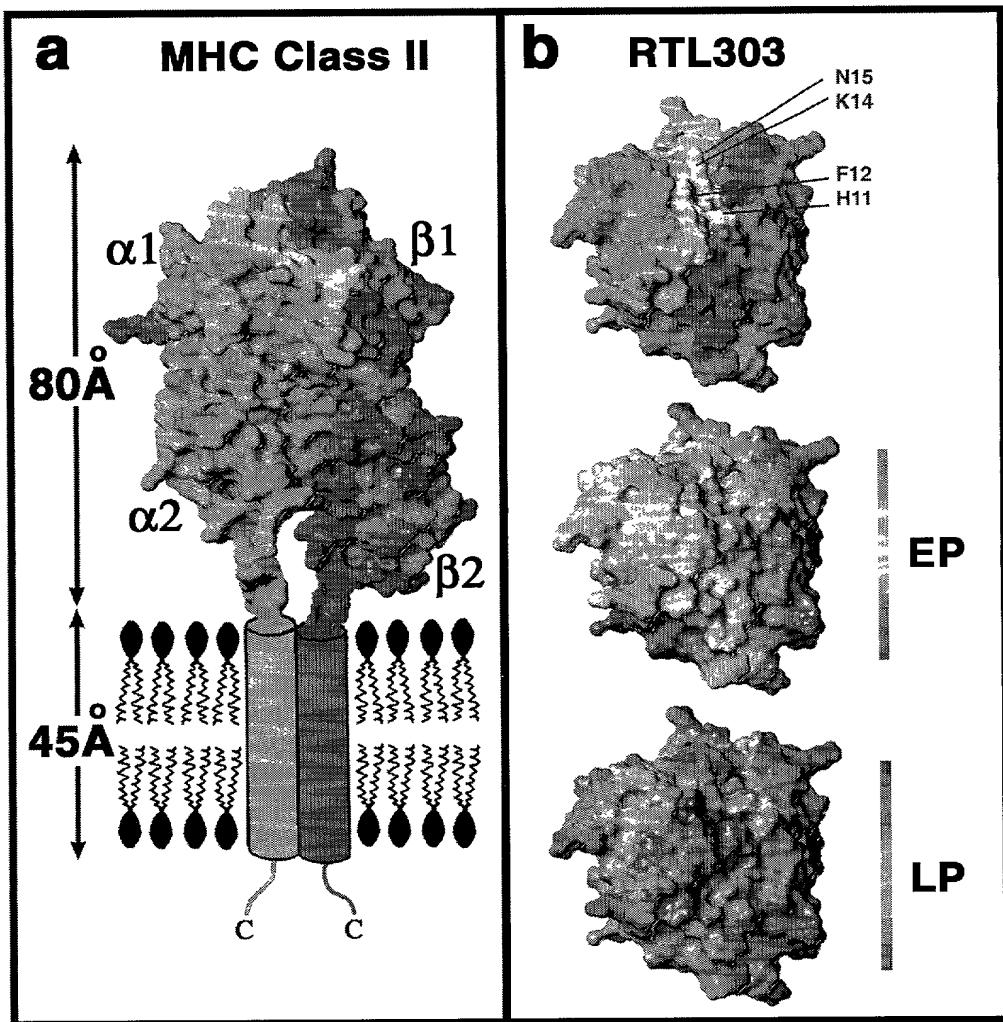
GLY1-SER2-HIS3-SER4-MET5-ARG6-TYR7-PHE8-TYR9-THR10-ALA11-MET12-
SER13-ARG14-PRO15-GLY16-ARG17-GLY18-GLU19-PRO20-ARG21-PHE22-ILE23-
ALA24-VAL25-GLY26-TYR27-VAL28-ASP29-ASP30-THR31-GLN32-PHE33-VAL34-
ARG35-PHE36-ASP37-SER38-ASP39-ALA40-ALA41-SER42-PRO43-ARG44-THR45-
GLU46-PRO47-ARG48-PRO49-PRO50-TRP51-ILE52-GLU53-GLN54-GLU55-GLY56-
PRO57-GLU58-TYR59-TRP60-ASP61-ARG62-ASN63-THR64-GLN65-ILE66-PHE67-
LYS68-THR69-ASN70-THR71-GLN72-THR73-TYR74-ARG75-GLU76-ASN77-LEU78-
ARG79-ILE80-ALA81-LEU82-ARG83-TYR84-

α₂ domain:

TYR85-ASN86-GLN87-SER88-GLU89-ALA90-GLY91-SER92-HIS93-ILE94-ILE95-
GLN96-ARG97-MET98-TYR99-GLY100-CYS101-ASP102-LEU103-GLY104-PRO105-
ASP106-GLY107-ARG108-LEU109-LEU110-ARG111-GLY112-HIS113-ASP114-
GLN115-SER116-ALA117-TYR118-ASP119-GLY120-LYS121-ASP122-TYR123
ILE124-ALA125-LEU126-ASN127-GLU128-ASP129-LEU130-SER131-SER132-
TRP133-THR134-ALA135-ALA136-ASP137-THR138-ALA139-ALA140-GLN141-
ILE142-THR143-GLN144-ARG145-LYS146-TRP147-GLU148-ALA149-ALA150-
ARG151-VAL152-ALA153-GLU154-GLN155-LEU156-ARG157-ALA158-TYR159-
LEU160-GLU161-GLY162-LEU163-CYS164-VAL165-GLU166-TRP167-LEU168-
ARG169-ARG170-TYR171-LEU172-GLU173-ASN174-GLY175-LYS176-GLU177-
THR178-LEU179-GLN180-ARG181-ALA182-ASP183-PRO184

FIG. 12

FIG. 12



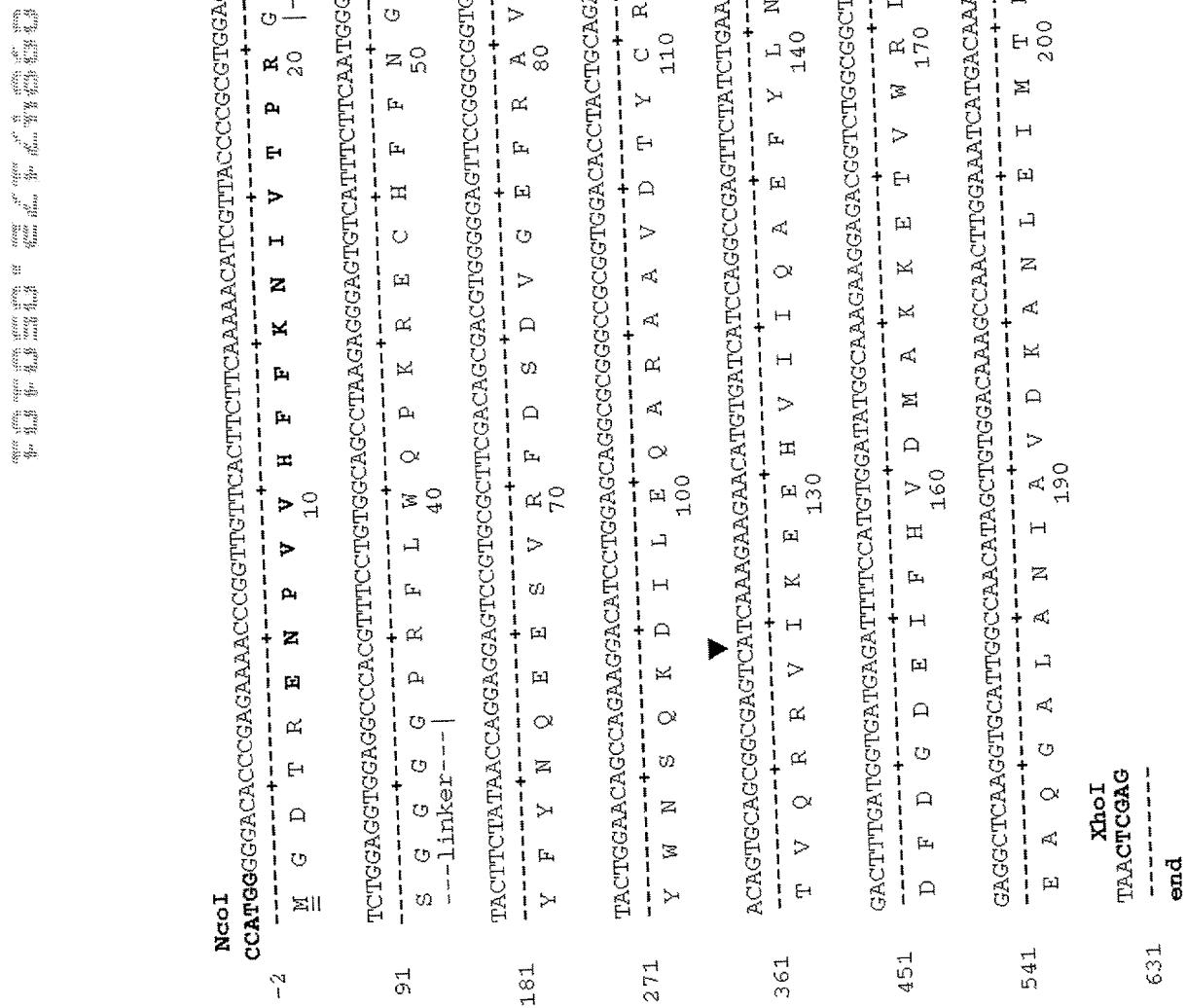


FIG. 13

FIG. 14

FIG. 14

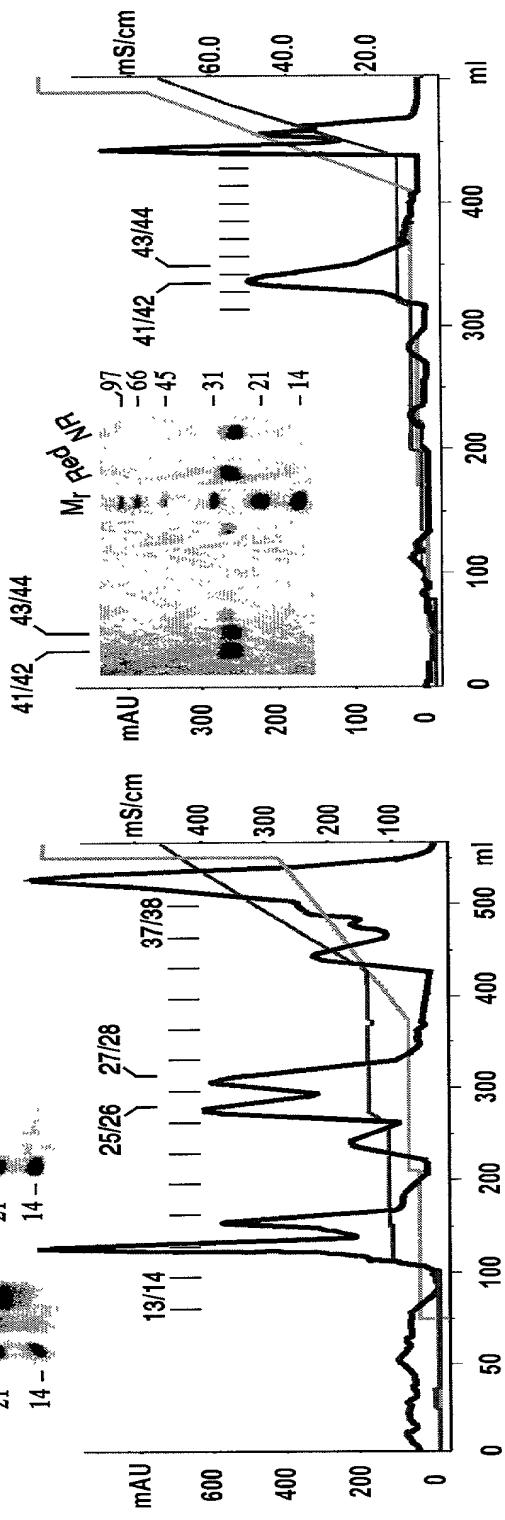
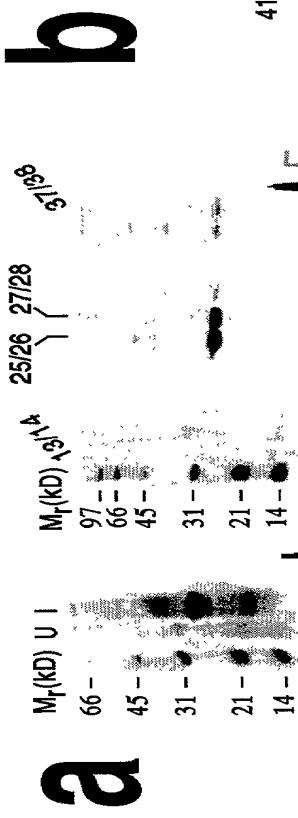




FIG. 15

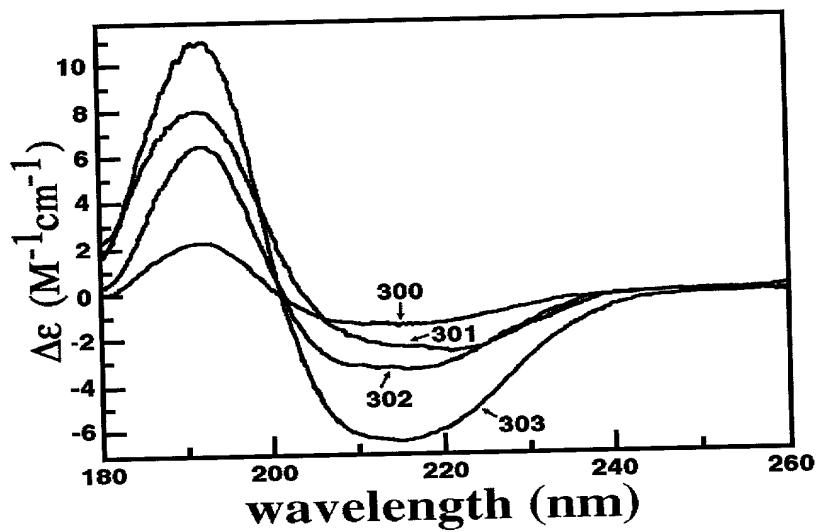


FIG. 16

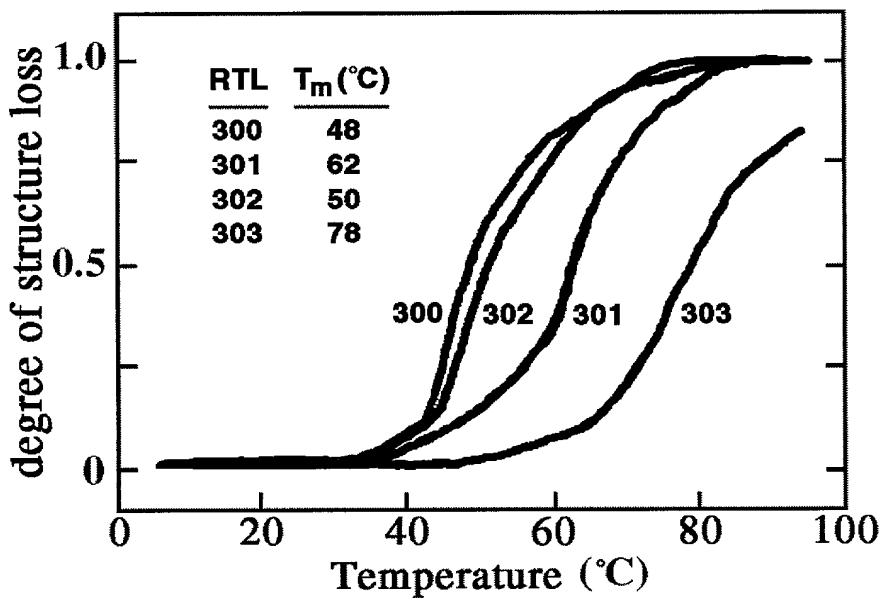
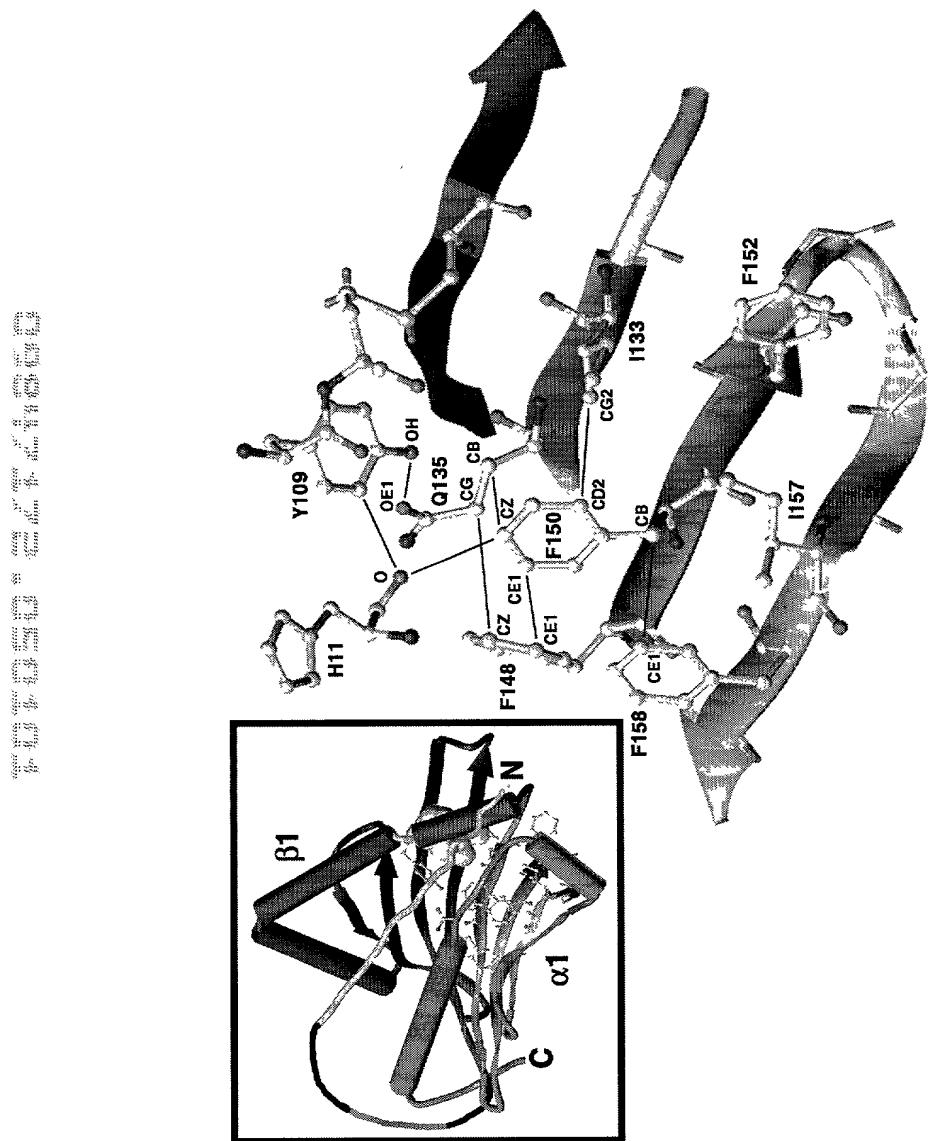


FIG. 17

FIG. 18



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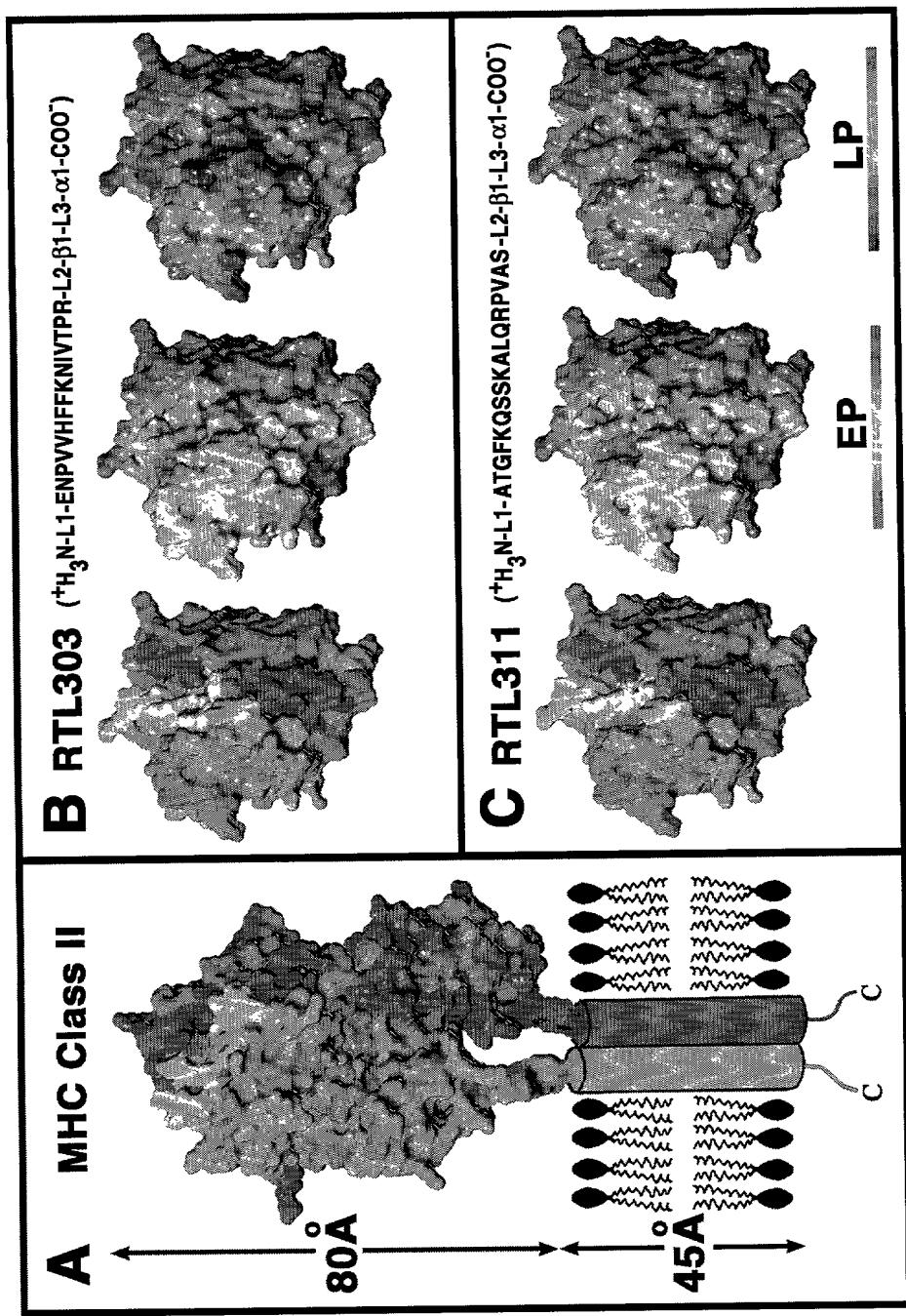


FIG. 19

MR#3-1 MR#2-87 CP#1-15

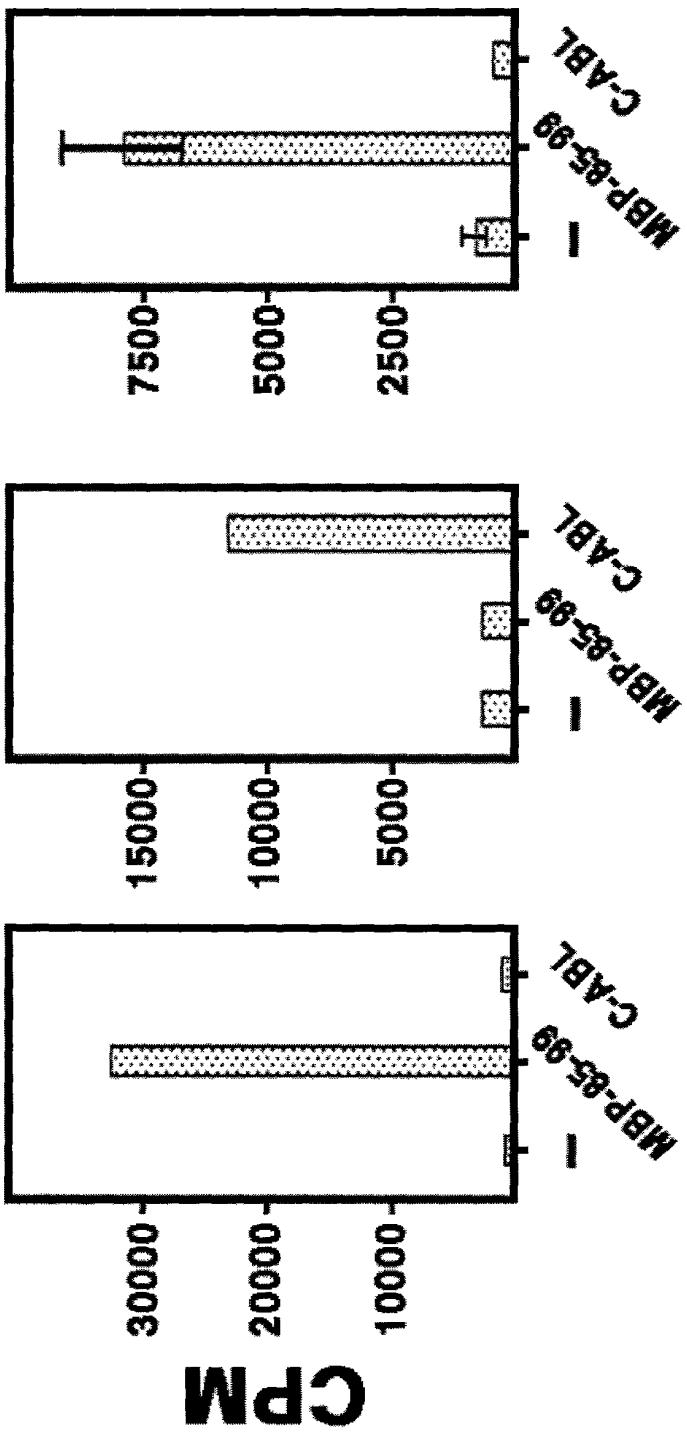


FIG. 20

FIG. 21 A

#3-1 #2-87

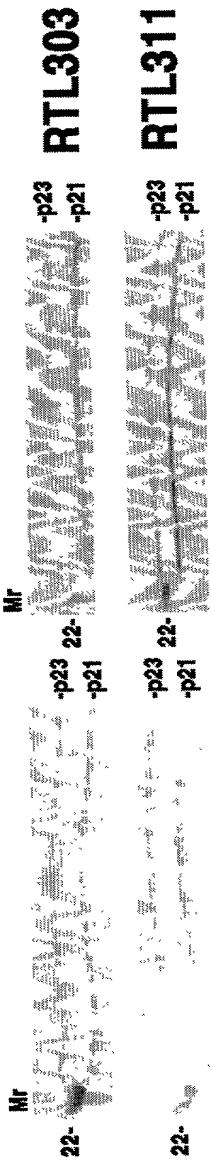
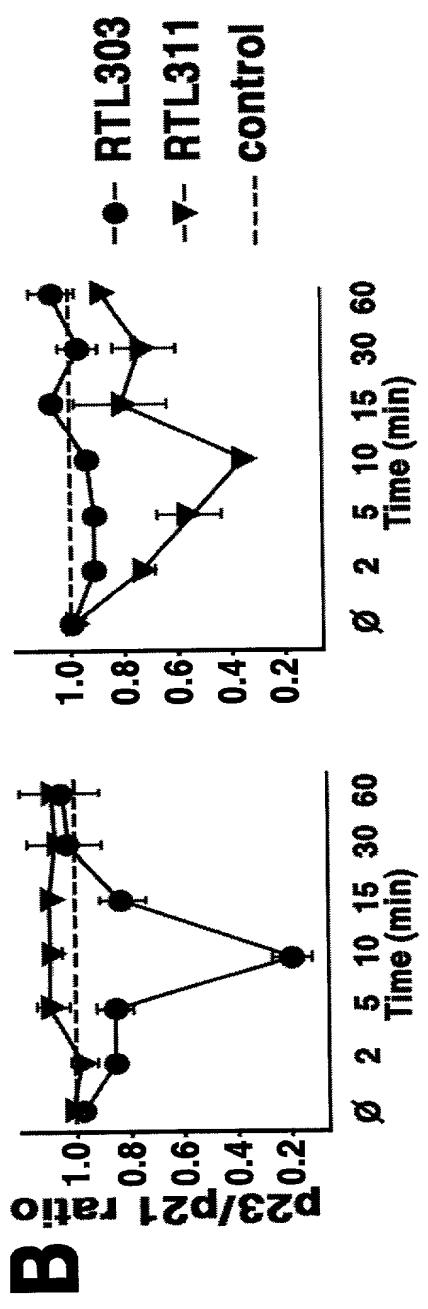


FIG. 21 B



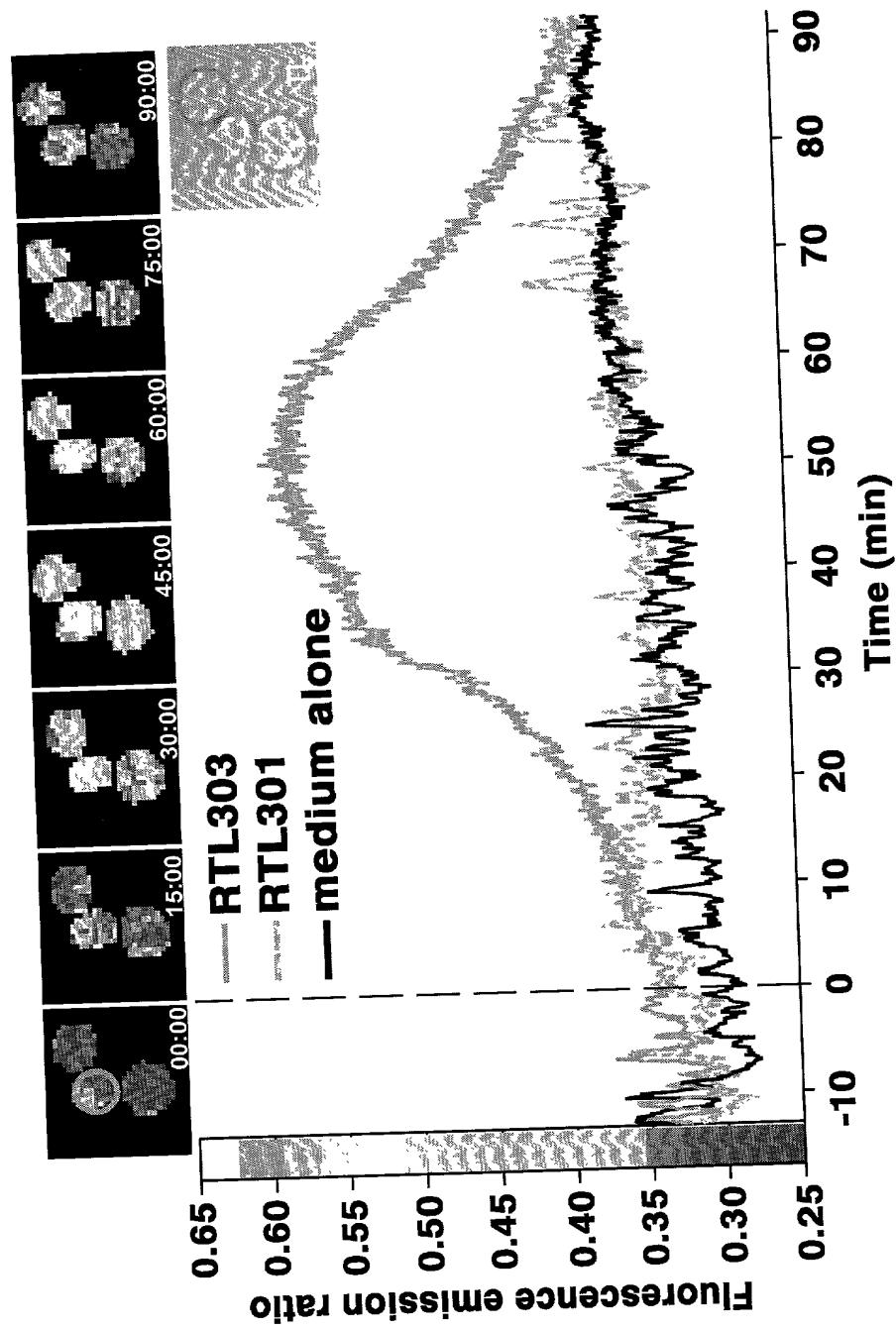


FIG. 22

FIG. 23 A

#3-1

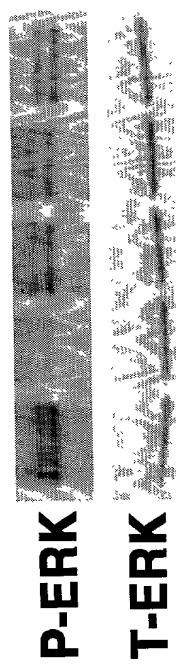


FIG. 23 B

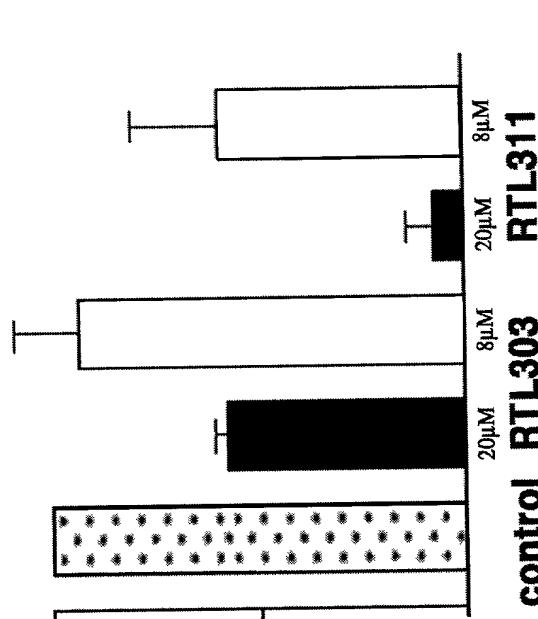
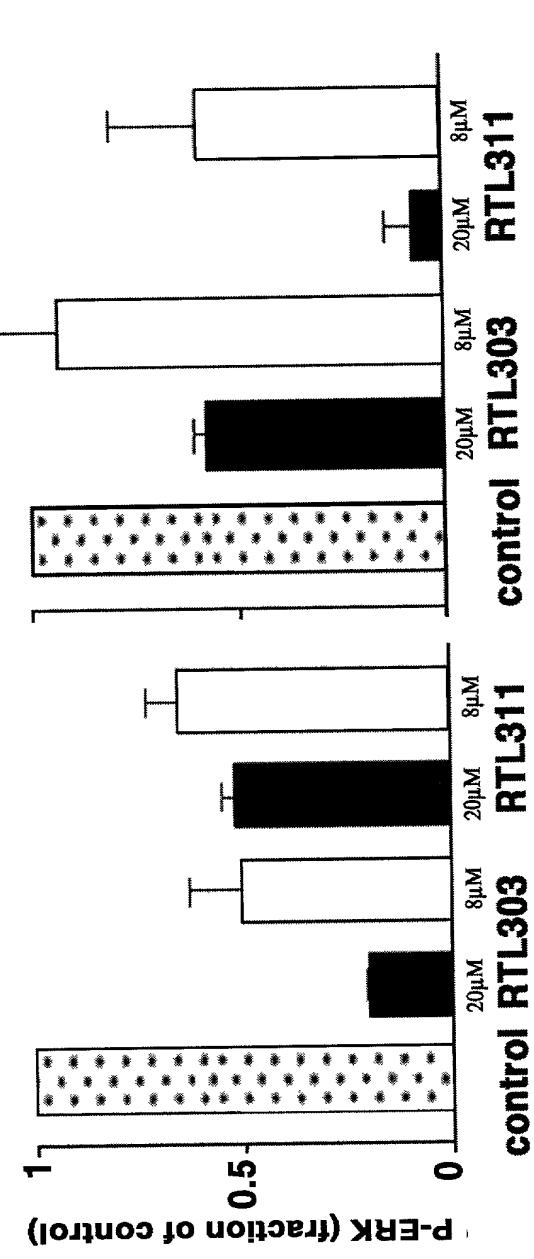


FIG. 24 A MRF#3-1

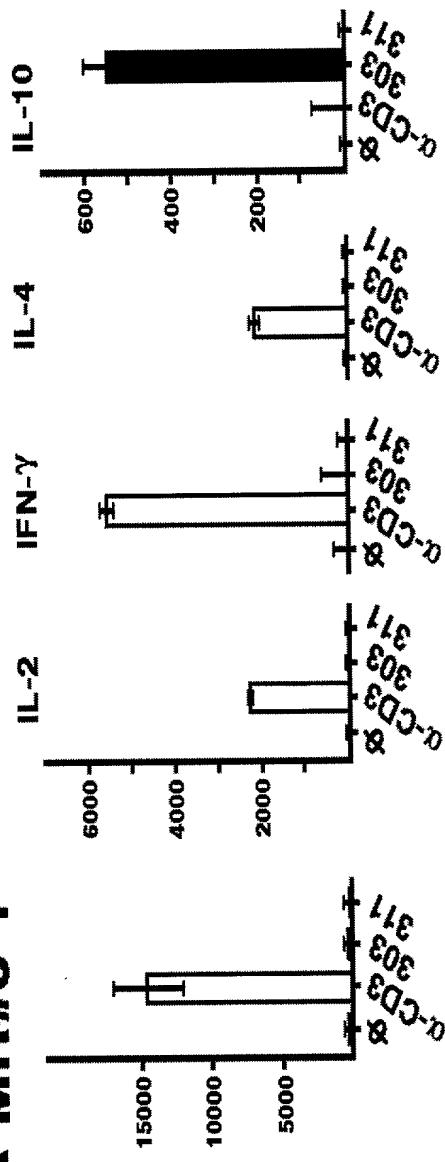


FIG. 24 B MRF#2-87

